How Much Capability Does a Capabilities Based Force Need?

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How Much Capability does a Capabilities Based Force Need?

"Inside the Defense Department and in talks to members of Congress, I began promoting a rationale for the Base Force, a shift from a solely threat-based force to a threat- and capability-based force. We might not face the old threat from the Soviet Union, I said, but we still had to maintain certain fundamental capabilities. For example, we might no longer have a specific airlift requirement to move X million tons of materiel to Europe to meet a potential Soviet invasion. But we still needed the capability to move huge stores to unpredictable trouble spots around the world. We might no longer face the 8th Guards Army across the Fulda Gap, but we still needed the capability to project power elsewhere."

- General Colin Powell, CJCS, 1990[1]

In 1990, with the Soviet threat fading, General Powell knew it was time to act and lead the military past the Cold War. His solution, as noted above, was the creation of the "Base Force". Absent a clear and quantifiable threat, the Base Force focused on "capabilities" needed for the future. The resulting change to the Defense Department's weapons acquisition requirement's process was a major break from almost five decades of Cold War "threat based" analysis.

The thesis of this paper is that moving from threat based to capabilities based requirements has had an unexpected and profound consequence – services now have unprecedented "capability" to compete in each other's mission areas.

[1] Colin Powell, My American Journey, Ballantine Books, New York, 1995, p 438

This has resulted in severe overlap in weapons acquisition, as each service competes for the new system that will allow them to demonstrate a given capability and bring along a greater relevance in the next debate on roles and missions. I shall attempt to describe the acquisition process as it was (pre 1990), the period of "capabilities discovery" (beginning in 1991), and how the following explosion of new systems has created an unexecutable Defense budget. Finally, I shall offer a prescription on how to determine a "capabilities requirement" for tomorrow's force, and recommend specific actions that leaders could take to improve both our warfighting capability and the effectiveness of the budget.

Background: Threat Based Force

> *The formal acquisition process normally begins with a threat analysis, which evolves into an operational requirement. For example, if the Marine Corps defines a mission need (i.e., response to a threat) for a new landing craft with access to a larger percentage of the world's beaches and with a higher speed than that of existing landing craft, a military requirement for such a product would be established. If the Navy determines that the Soviets have made certain submarine advances, the Navy then defines the need to counter with an antisubmarine warfare helicopter with certain capabilities; that is then established as an operational requirement. Both requirements would reflect the estimated capabilities of potential adversaries.*[2]
>
> *- J. Ronald Fox, Harvard Business School, 1988*

[2] J Ronald Fox, The Defense Management Challenge· Weapons Acquisition., Harvard Business School Press, 1988, p 23

For 45 years, weapons acquisition in the Pentagon was fairly straightforward. The threat was unequivocal and quantifiable. As school children practiced "Duck and Cover" drills, our intelligence agencies gave us volumes of information on Soviet tanks, planes, atomic weapons, submarines, troops and more. Anything we didn't truly know could be modeled, usually with a healthy dose of "worst case" applied to the scenario. All those threats were then very carefully matched to our weapons acquisition strategy. Even in times of scarcity (i.e., post-Vietnam), the Defense Department generally knew how it wanted to apply limited dollars to best counter the threat. When modernization accounts were slashed in 1974, the Army responded by focusing on "The Big Five" systems (Patriot, M1 tank, M2 Bradley, Apache helicopter, MLRS) which brought the best capability to counter the threat. Those who challenged threat-based budgets for the Defense Department were few and could even be subject to having their patriotism questioned. After all, every procurement program could be directly linked to enemy capabilities they were to counter —who could argue with that?

The Discovery Period – 1991 and Beyond

Following General Powell's creation of the Base Force, services were left with a dilemma – how to define what capabilities they would need in a multi-polar world with no clear threat, and a coming precipitous drop in budgets. The Nation was clamoring for, and ultimately got, huge defense budget cuts (See Table 1).

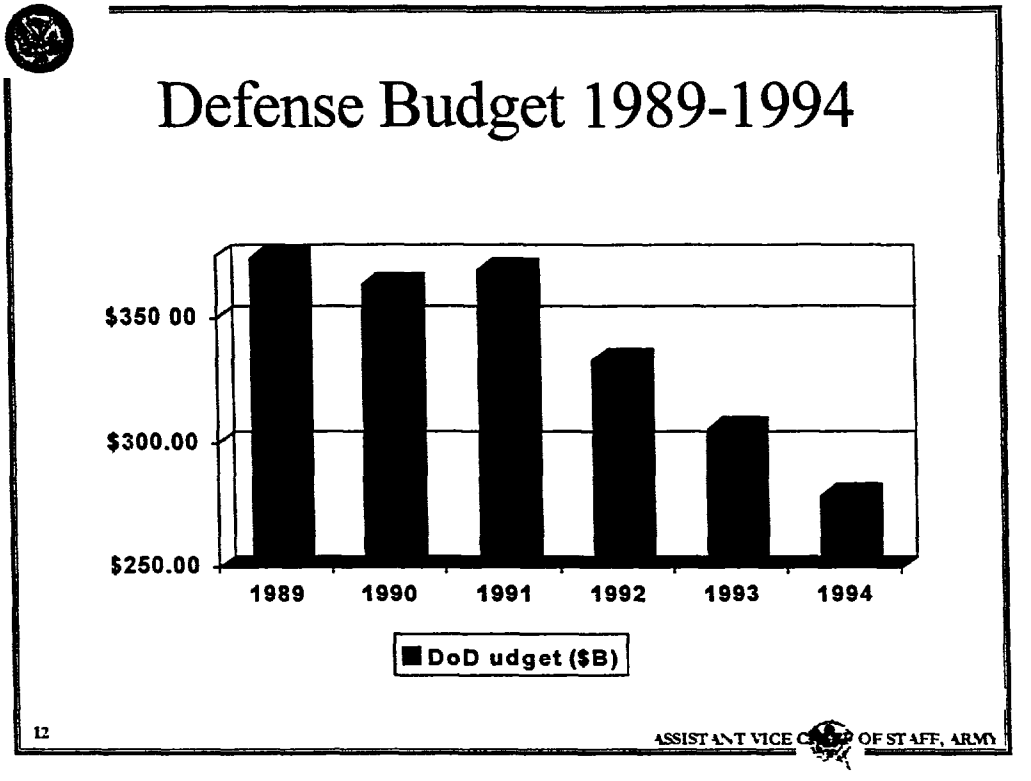

Table 1 – Budget Forecasts from 1989 to 1994

In May, 1990 General Powell told the New York Times that he expected defense budgets to decline 25%; although very controversial, he was correct – budgets later that year reflected a 25% cut. Service Chiefs were looking at a drastic drop in TOA – Total Obligation Authority, which is a service's lifeblood. Without sufficient TOA, a service cannot man its force structure, cannot maintain its installations and infrastructure, and certainly cannot invest adequately in future modernization. But now there was a difference. Previously, services could only look to those specific threats they were to counter – Army tanks against Soviet tanks, Navy Carriers against Soviet Carriers, etc. But the Base Force broke that mold. Now the services looked to the future and saw possibilities of reinventing

their core competencies (and preserving their TOA!) by focusing not just on their Title X missions, but rather on what "capabilities" technology and innovation could bring to their branch. While a changed strategic environment certainly merited a review of Service Roles and Missions, few would have anticipated what came next.

"Hey! I Can Do That!"

After Desert Storm, the U.S. Navy was reviewing records of its Aegis SPY-1 Radar data when it discovered something important – the SPY-1 had "seen" and tracked several of the SCUD missiles Sadaam Hussein had fired at Saudi Arabia. In the Cold War, that might have been an interesting discovery, but not one that would have attracted much attention. The U.S. Navy's fleet already had its threat – the Soviet Navy. The Army was clearly in the business of providing Missile Defense, as it had since the days of Nike Ajax, a nuclear Anti Ballistic Missile system fielded in the 1950s. But in the post-Cold War era, the Navy (and all services) stood to lose big. Unless it could document a "capability" that would clearly articulate a requirement for cruisers, the Navy's Aegis fleet was vulnerable to the budget ax. Theater Missile Defense (TMD) was a capability made in heaven – now the Navy had "discovered" a major new role for the 21st Century – how could Congress downsize the Aegis fleet when that fleet was going to provide worldwide TMD, and maybe even global National Missile Defense (NMD)?

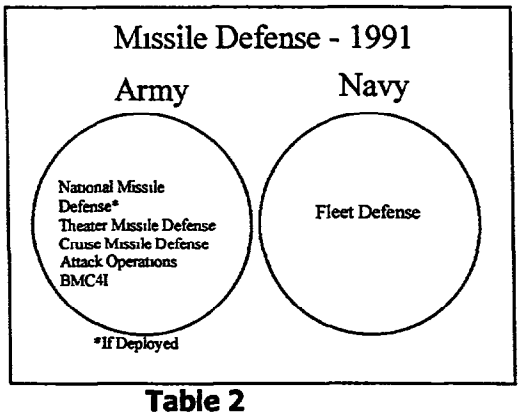

Table 2

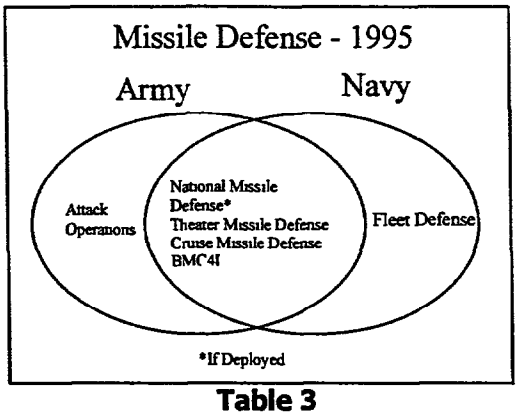

Table 3

Tables 2 and 3 above demonstrate what can happen when mission and money are on the line. The Navy went from virtually no role in missile defense to an aggressive, top-to-bottom embrace of TMD and even NMD in less than four years. Though it may still be 5-10 more years before an operational system is fielded, the Navy has added missile defense to its daily lexicon and even has three Aegis "TMD" cruisers. (The minor point that they have no missiles is often overlooked in briefings.) The more important point is that Navy Area Defense (lower tier TMD), Navy Theater Wide (upper tier TMD), and proposals for Navy NMD have not been zero sum programs – no service or program was canceled to make room for the newcomers. The Army's programs – Patriot Advanced Capabilities III (PAC III), Theater High Altitude Area Defense (THAAD) and Corps SAM moved along, although a bit slower due to competition for TOA. Even if BMDO's budget were doubled, it could not field all current TMD systems in the quantities and according to the timelines the services "require".

The Air Force, for its part, "discovered" that TMD offered numerous opportunities as well. Within 24 months of the end of Desert Storm, the USAF was actively working on four TMD programs: Airborne Laser (ABL), Space-based Laser (SBL), F-15 mounted Boost Phase Intercept (BPI), and Unmanned Aerial Vehicle Boost Phase Intercept (UAV BPI). The Air Force had a historical role in the defense of the United States, against air attack – a mission which they would see severely curtailed by budget cutters in the new era. The Air Force needed TMD to establish a position in the coming budget and mission wars. But there was also a second reason – free money.

When President Reagan's SDIO (Strategic Defense Initiatives Office) became the Ballistic Missile Defense Organization (BMDO), the services "discovered" a new source of TOA. BMDO has been budgeted at between $2.8 billion and $4.2 billion every year since 1986. From a service perspective, this is "free" money, direct from the Office of the Secretary of Defense (OSD) and not counted against their service. In 1994, Army programs received 77% of all BMDO funding; by 1997 the Army portion was less than 50%.[3] The Navy and Air Force have "followed the money", and have harvested billions of dollars for their TMD programs, which, not coincidentally, also allows them to claim a role in future debates on roles and missions. As a point of illustration, during the 1995 Roles and Missions debate, the USAF took the unusually bold step to redefine TMD as being subordinate to the larger "Theater Air Defense" (TAD) mission area, and

[3] Ballistic Missile Defense Program Funding, Historical Funding For (SDI) BMD FY85-97.

therefore belonging completely to them. The logical extension of this argument, as presented by General Merrill McPeak, USAF Chief of Staff, in his briefing to the 1994 Commission on Roles and Missions, was to "Reorganize TAD by transfer of HIMAD SAM [High Missile Air Defense Surface to Air Missile] systems to the USAF (Patriot, HAWK and Corps SAM.)"[4] The traditional definition (strongly supported by the Army and "obliquely" supported by JCS Pub 3.0) held that the only overlap between TAD and TMD was in the area of Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I) as depicted in Table 4 below. The positions put forward by both sides are depicted in Tables 4 and 5.

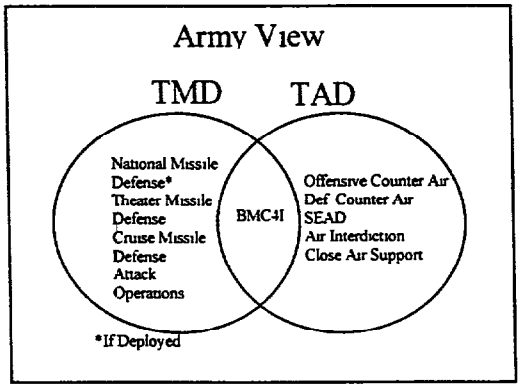

Table 4

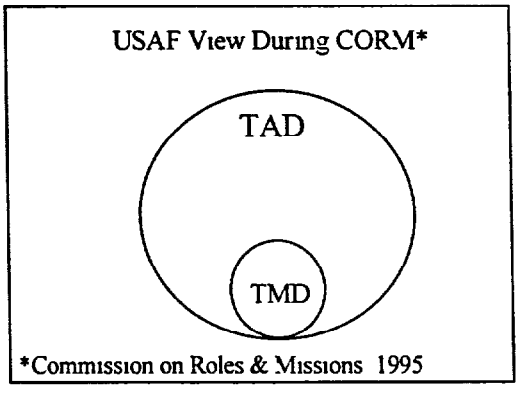

Table 5

Regardless of which side you support, the greater issue is that the debate occurred at all. The fact that two services, both of whom presumably have literate staff officers, could be so far apart on whose Title X function TMD is demonstrates my thesis that we are well on our way to bankruptcy. Now take the

[4] McPeak, Merrill A., General, Presentation to the Commission on Roles and Missions of the Armed Forces, 14 September 1994 U S Government Printing Office, 1994. P. 156

three Army TMD systems, add two from the Navy and four from the USAF, and we have nine systems and three services competing for mission and money. Competition can be a good thing, and redundancy in procurement can bring synergistic capabilities to the battlefield. But there are other costs. The Army recently accused Lockheed Martin (prime contractor for THAAD) of putting "second class" engineers on its THAAD missile contract, because of the sheer number of TMD programs Lockheed Martin managed had consumed all the "top-shelf" engineers. The world will never know how much sooner THAAD might have reached the field if OSD had focused its efforts and attention on fewer TMD programs. OSD didn't – THAAD is now a decade behind its original schedule. The vital requirement articulated by Congress in the Missile Defense Act of 1991 has been delayed in part due to "discovered" capabilities of those who see a mission in the money. Meanwhile the nation scatters its treasure among numerous claimants even though the "need" for missile defense is here today.

The F22 Raptor – maintaining the USAF lead

Lest I be accused of picking a "niche" (Missile Defense) to demonstrate my capabilities hypothesis, let's turn to a more traditional cold war problem – air superiority. Very few would dispute that the United States Air Force is the best in the world, or will remain so for years to come. Yet the USAF is very motivated to field the F22, which is arguably the Nation's first "capabilities based" weapons program. The Air Force F22 doesn't rely on a specific threat to justify its

existence; rather the Raptor was designed with a "basket of capabilities" to ensure U.S. dominance for decades. Even though the U.S. is absent a credible air threat for the foreseeable future, the Air Force is building the Raptor as a hedge against future potential threats to ensure we maintain a lead. The challenge becomes, however, defining just how good the F22 needs to be. During the Cold War, facing an overwhelming Soviet Air Force, the U.S. talked about Air Parity, and worked tirelessly not to "lose" the skies over Germany to the USSR. Towards the end of the Cold war, the U.S. leveraged technology, doctrine and training to attain undisputed "Air Superiority". Today, in the parlance of Joint Vision 2010, the USAF has redefined their mission to accept nothing less than "Air Dominance". Has the President or Secretary of Defense decreed a mission change for the USAF? Has the Congress changed Title X Roles and Missions? If not, why is America buying a $71 billion, futuristic thrust-vectoring, supersonic-cruising, stealth fighter for which we have no enemy? Because we have the capability to, that's why! I believe there is vision in not waiting until you are in second place to pursue the next advance in technology. The challenge for OSD and Congress, however, is to determine how much better we need to be, and how fast we need to pursue a "world beater" fighter when we lag seriously behind in addressing numerous "real" threats today in field artillery, counter-mine warfare, missile defense, and more.

How Many Ways Can You Kill a TanK?

We've already discussed some of the challenges when all the services "discover" a new mission area or opportunity to increase budgets. But what happens when developing a new capability is not a race for money or mission, but rather a logical extension of today's technology and doctrine? In World War II, if you wanted to kill a tank, you generally wanted another tank to do the job. Bazookas and land mines offered some capability, but no one doubted the primacy of tanks in the anti-tank role. By Vietnam we had developed the TOW (Tube-launched, Optically-tracked, Wired-guided) missile system, and the calculus began to change. A sampling of current and planned anti-armor systems is listed below:

ANTI-ARMOR SYSTEMS
M1 Tanks (with M1A1 and M1A2 upgrade variants)
TOW Missile (Heavy anti-armor round)
Javelin Missile (Medium anti-armor round)
SADARM (Sense and Destroy Armor) Artillery Round
ATACMS BAT (Army Tactical Missile System – Brilliant Anti-Armor)
WAM – (Wide Area Munition Mine)
Apache Longbow with Hellfire Missile
Cruise Missiles
A10 "Tankbusters" w/30mm Depleted Uranium Shells
F-15 Fighters with Precision Guided Munitions (PGMs)
FASCAM Artillery Launched Anti-Tank Mines
Navy F/A-18 with PGMs
*F-22 Raptor with PGMs
*AMS-H (Advanced Missile System – Heavy): Replacement for TOW
*Comanche Helicopter with Longbow

* In Development

And this list is far from complete. Add the numerous munitions that an M1 tank can fire, or a fighter can drop, and there are literally dozens of ways to destroy enemy armor. My point here is that the Department of Defense has evolved over the last several decades from having one service that had the "capability" to kill tanks to an environment where every service brings multiple tank-killers to the battle. Have we bought too much? Stay tuned.

One More Example – The Littoral

Webster's dictionary defines littorals as "the shore zone between high and low water marks." For decades the littoral was simply a piece of terrain where water and land met – useful for amphibious operations planning, but not particularly contentious. The Cold War Navy was an "open ocean" force, meant to fight and win in "Blue" water. Webster aside, the conventional and traditionally accepted distance associated with the littoral was the coastal waters and 70 miles inland, to allow the proper establishment of a secure beachhead. In *Military Geography,* John Collins defines "littorals that extend seaward from the shoreline no more than 100 nautical miles (185 kilometers) and an equal distance inland, which affords enough depth in each direction to stage, conduct and support coastal operations, including amphibious assaults."[5] I use this rather redundant series of definitions to highlight something dramatic that happened in 1992. In the Navy's post-Cold War "...From the Sea" the littoral was defined as ranging

from the "open ocean to the shore, thence overland 650 nautical miles."[6] Even using Collins' "100 mile" definition, the Navy had just expanded the littoral six-fold. They now laid claim to (at least) 550 miles of land that the U.S. Army and Air Force thought itself responsible for. In "...From the Sea" and "Forward, from the Sea", the Navy makes a compelling case for increased involvement in the littoral as the future of warfare. Yet, what analysis was done to measure the "requirement" for a "Land Attack" Navy? Should the Army have fewer divisions or the Air Force fewer Wings because the Navy decided to move in on their turf?

So How Much Capability is Enough?

This is the root of the issue. If defining requirements were easy, OSD would have done it long ago. Having said that, here's a prescription that could begin to address the problem of too many systems for our needs and budgets:

1. The JCS Should Publish a Capstone Requirements Document (CRD). This document could begin with the four Operational Concepts prescribed in Joint Vision 2010 – Dominant Maneuver, Precision Engagement, Full Dimensional Protection, and Focused Logistics. With those concepts as a basis, lay out a "maximum capability required" in every category. As an example, under Dominant Maneuver, the Joint Staff might assess the required capability to defeat enemy armor. For tank killing, the issue then becomes how many total

[5] Collins, John M., Military Geography for Professionals and the Public (National Defense University Press, Washington, DC, 1998), 126-127.

tanks need to be killed, with what redundancy, at what band of ranges, and by what point in the battle. The details of which would then become the Capstone Requirement for tank killing. As services proposed new systems, they would gain support for their tank killing ability until the requirement was met. Above the requirement, new systems would receive no "credit" for tank killing ability. For example, if a new Air Defense system was proposed that also killed tanks, that system could gain support under two categories, if both were short of meeting their respective requirements. The services will resist this intrusion on their "Man, Equip and Train" Title X functions. Additionally, care must be taken to ensure that the "best" systems are not vetted out of competition by less capable multi-mission "do everything pretty well" platforms.

2. Address the Shortages First. When doling out scarce resources, fix areas where we today have a capability shortfall against known enemies. From examples cited in this paper, that would drive counter-mine warfare capability to a priority level commensurate with Air Dominance. The F22 might retain full funding, but the already expensive JAST (Joint Attack Strike Technology) fighter might then take a back seat for a decade or two.
3. Don't Embrace Technology Just for Technology's Sake. Just because a technology is feasible doesn't make it militarily desirable. The JROC (Joint Requirements Oversight Council) should look hard at "leading edge"

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[6]. From the Sea Preparing the Naval Service for the 21st Century (Washington, DC Department of the

technology to ensure that it is spending wisely and in appropriate priority. Two examples that could bear scrutiny would be liquid propellant for artillery and "supercruise" for the F22. In the former, Crusader's (the Army's premier future artillery system) pursuit of liquid propellant technology was relentless. Liquid propellant offered the promise of faster firing rates, greater range, easier logistics, and even a "self cleaning" main gun. But technology simply didn't fulfill its promise. Chasing liquid propellant slowed the Crusader program by several years, added hundreds of millions to the cost, and was eventually abandoned as too hard to do. Supercruise (the ability to sustain supersonic flight without afterburners) is a wonderful technology, does appear to technologically achievable, and which truly does enhance the overall capability of the USAF. However, is the added billions of cost worth the opportunities sacrificed elsewhere? Would an F22 without supercruise fail to be a "world-beater"? If so, continue to apply the absolute leading edge of technology – if not; readdress the need for that capability in light of other needs.

4. Have Congress Return Part of the "Peace Dividend".

Table 6 below was produced by the Office of the Army's Assistant Vice Chief of Staff to document the extent of today's Peace Dividend. Had the Cold War funding levels of 1990 been continued (i.e., not decreased and adjusted for inflation), the Fiscal Year 1999 Defense Budget would be $374 billion, over $100

Navy, 1992) p 6

billion more than approved by Congress last year! Additionally, since 1989, the cumulative "Peace Dividend" (the difference between Cold War and post-Cold War budgets) has reached $747 billion, and will exceed $1,000,000,000 (one trillion dollars) by the year 2002. Defense spending in 1999 declined to just 3% of U.S. Gross Domestic Product (GDP), the lowest level since before Pearl Harbor. If a compelling argument has been made that America has already reaped nearly one trillion dollars of dividend, then it follows that it should not be impossible to "negotiate" some portion of future dividends to increase top-line Defense TOA. If only 20% of the dividend were returned to DoD, defense modernization accounts could be increased $20 billion annually.

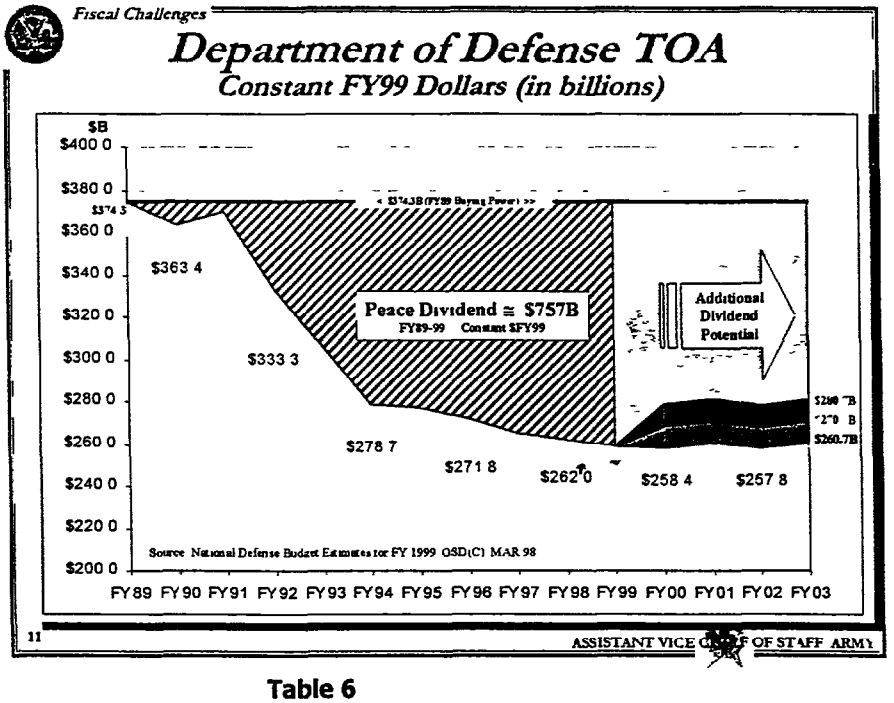

Table 6

What Happens if We Don't Address "Excess" Capabilities

The answer to this question, unfortunately, is easy to see. The Department of Defense might legitimately need six new systems to kill tanks – the services will pursue thirteen. The Joint Requirements Oversight Council (JROC) will not be able to stop the flood of new programs. The JROC is heavily involved in weapons acquisition, but is structurally constrained to look at program key performance parameters and cost factors, not aggregate capability across multiple services. Eventually one or two new anti-tank programs will prove technologically unachievable; experience unacceptable delays or cost overruns, or be offered up in a deal and be killed. That will leave eleven programs covering a six-program requirement. OSD will not offer up larger budgets just because services want more programs than required, so all will have to make do with less. Production lines will never have sufficient funding to give the services an economic order quantity – price per unit will be astronomical. Additionally, fielding systems to the force will take 20+ years, vice the 4-6 years each service "required" at Milestone I. Finally, by the time the last unit is equipped, the system will be obsolete. If we take no action this is truly our opportunity cost lost. For the sake of the Soldiers, Sailors, Airmen and Marines of the year 2010, I hope we decide that this cost is too high. We are more "capable" than that.

- LTC Michael P. Locke